

Best Location for a Fast Food Restaurant in Downtown Chicago

Joshua Rowan

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1. Introduction

1.1 Background

Downtown Chicago is a center of commerce and entertainment with hundreds of thousands of people commuting there daily for work. With so many people coming and going through this area, a fast food restaurant would be great down there. But there are so many already, so speed is the name of the game. If your place is faster than the rest, you can beat out competition and maximize profits from the commuting crowd. The most likely times for people to grab a snack on the go would be when they're just off their stop or have some time before their bus or train is due to arrive.

1.2 Problem

With so many places to eat downtown, where should we place this restaurant? Nearest to mass transit stops would be best, and due to the large volume of customers, being too close to competitors is less of an issue. Data on CTA and fast food locations can help with finding out the best location.

1.3 Interest

Entrepreneurs, fast food chains and people wanting to open their own shop would be the ones most likely interested in this.

2.Data

2.1 Methodology

Using foursquare API to download the points where the CTA exists as well as fast food places, I used two anchor points to search. One being the center of downtown and the other being near the Metra stations. The data was then sanitized and the data frames were separated into trains, busses and fast food. They were kept separate as they would require different considerations and could add extra noise to the data.

After this we found the average of all data points in their respective sets to see the best overlapping area. Average works here due to the small area. In a larger area, clustering would become vastly more productive with much less error.

2.2 Sources

The source of the data were multiple calls to the foursquare API. Using queries located at two points we take all the CTA stops and fast food locations and store them into data frames. The two points are central downtown and the Metra stations (Ogilvie and Union which have most of the Metra tracks) which are further west.

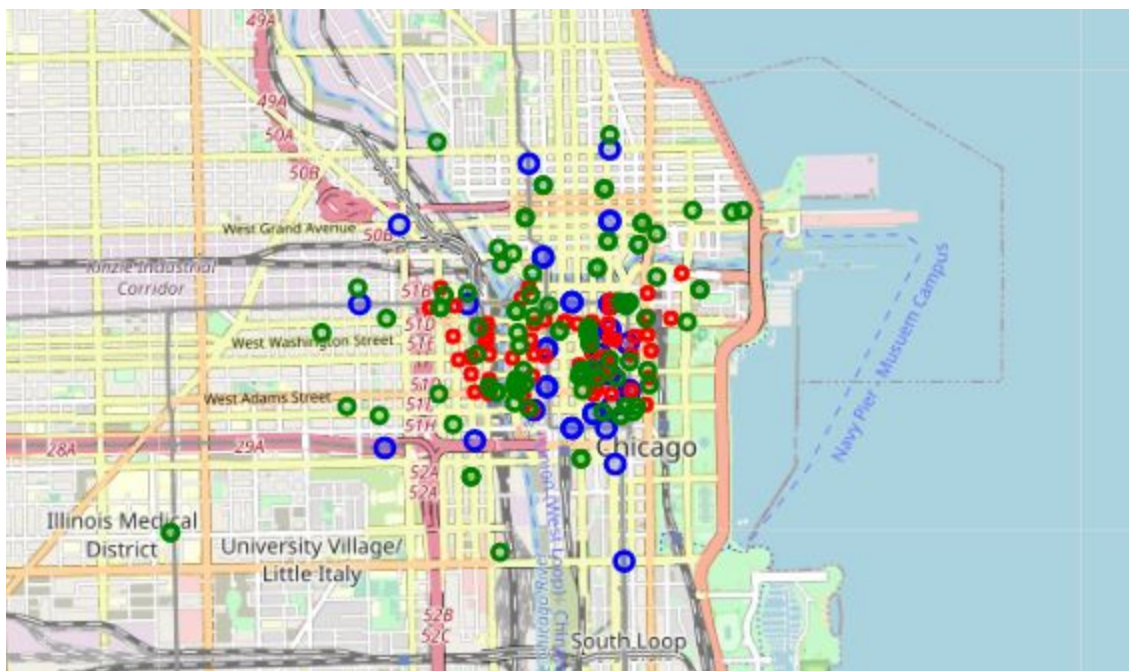
2.3 Cleaning

Cleaning the data was easier as there were not as many data points as some sets could contain. First we find places that don't fit, like a FASTSIGNS location that doesn't serve food. Then we separate the trains from the busses. While busses are a key part to the CTA, the train stops are fewer and handle a larger volume.

3. Using the data

3.1 The Plot

Using the data we have we can plot out where all the trains, busses and fast food locations are. This plot gives us the basic information on clusters and the transit system in general. The data shown is raw and not yet analyzed.



The green dots are the fast food locations, the red are bus stops and the blue are CTA train stops.

3.2 The Plot Thickens

After using clustering and weighing the data points the data shows a small area where the trains, busses and restaurants come together.



4. Results

The map shows where there is a higher density of both trains and busses. It shows that there are already many fast food places nearby the higher density transit points. The average of all points shows Washington and LaSalle as the best point to overlap all mass transit.

5. Conclusion

This is a rough example of using the foursquare geo data to find the CTA locations and finding a place near most of them. Data I was unable to find that would make a much more complete data analysis would include several different data sets. These include throughput of each CTA stop, the total number of commuters and transit times, information on how many people commute via mass transit AND eat fast food. There would also be logic to surveying on if an area can use another fast food joint or if the market is saturated. Finally location prices would be the final data point.

The data also shows the empty points where there are fewer fast food places and may be a place to soak up some local business.